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MEMORANDUM

TO: Alan C. Lloyd, Ph.D.
Chairman

Honorable Board Members

FROM: Michael P. Kenny
Executive Officer

DATE: August 27, 2001

SUBJECT: JUNE 2001 UPDATE ON THE ARCHITECTURAL COATINGS
SUGGESTED CONTROL MEASURE

The purpose of this memorandum is to provide an update to the members of the Air Resources Board (ARB/Board) on the current status of the staff's architectural coatings program.

As part of its approval of the Suggested Control Measure for Architectural Coatings (SCM) during its June 22, 2000, meeting, the Board directed staff to provide them an update on three topics:

- (1) the availability of exempt solvents;
- (2) the feasibility of modifying the calculation of reportable volatile organic compound (VOC) content; and
- (3) the feasibility of a small volume exemption.

In addition, the Board directed the staff to report on the feasibility of a reactivity-based control strategy for architectural coatings by December 2002. An interim status report on reactivity is included here.

A more detailed report on each of these four topics is included as Enclosure 1. Enclosure 2 is a technical report on item (2).

Availability of Exempt Solvents

Exempt solvents are a group of compounds or classes of compounds that have been determined by the United States Environmental Protection Agency (U.S. EPA) to have negligible contribution to tropospheric ozone formation. The ARB also exempts compounds from the VOC definition in State regulations, usually based on petitions

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California Environmental Protection Agency

from manufacturers of the solvents. Coating manufacturers are interested in using exempt solvents because they provide them more flexibility in complying with new VOC limits. The two solvents currently of interest to the architectural coatings industry are parachlorobenzotrifluoride (PCBTF), exempted by the ARB in 1995, and t-butyl acetate (TBAC), for which petitions are currently being considered by both the U.S. EPA and the ARB.

The local air districts have already exempted PCBTF in their architectural coatings rules. However, the only U.S. manufacturer of PCBTF, OxyChem, announced in May 2000 that it was discontinuing production of PCBTF (trade name Oxsol® 100) and selling its plant. Staff has learned that OxyChem carried over a large stock of Oxsol® 100 when it announced the closure of the plant, so the supply was never interrupted. In addition, foreign supplies of PCBTF are readily available at comparable price and quality. Finally, several potential buyers are negotiating with OxyChem regarding purchase of the PCBTF plant. Thus, PCBTF is expected to be readily available for the foreseeable future.

The U.S. EPA is expected to exempt TBAC from its VOC definition. The ARB is in the process of evaluating the manufacturer's petition for exemption from ARB regulations. The ARB is currently conducting a comprehensive review of the total environmental and health impacts of TBAC. Concerns have been raised, within the California Environmental Protection Agency, regarding the carcinogenicity of a TBAC metabolite, and that not enough information exists to fully assess potential water quality and soil impacts. This evaluation is likely to be completed within a few months. Staff has advised districts to consult with ARB prior to exempting TBAC, since staff has concerns about toxicity and multi-media impacts.

The ARB staff did not base the VOC limits in the SCM on the availability of exempt solvents such as PCBTF and TBAC. Staff believes the limits are feasible without the use of exempt solvents. Currently, other exempt solvents such as acetone are being used in architectural coatings. The available exempt solvents have unique characteristics that are of value in providing particular functions in a limited number of formulations. Thus, staff believes that exempt solvents are readily available for certain applications, and that no changes to the SCM are warranted.

Calculation of Reportable VOC Content

Since the 1970s, the U.S. EPA has required that the VOC content of coatings be calculated on a "less water and exempt compounds" basis (which ARB calls "VOC regulatory"). For a coating containing a large amount of water or exempt compounds, the effect of this calculation is that the VOC regulatory is a larger number than if the

“less water and exempts” calculation had not been required. For example, in a waterborne coating containing 50 percent water, the calculated VOC regulatory is twice as high as the actual VOC content of the coating. Since the VOC regulatory is what is used to determine compliance with the VOC limit in a regulation, the “less water and exempts” calculation is controversial. The rationale for this calculation is that it provides an equivalent basis for comparing the polluting portion of solvent-borne, water-borne, and exempt solvent-containing coatings. The formula is intended to measure the ratio between the solvent and solids in a coating, so the emissions per surface area are directly comparable for all types of coatings.

To address this issue, the ARB has formed a working group consisting of stakeholders from the U.S. EPA, industry, and air districts. An analysis of this issue shows that the underlying need is to determine the validity of the assumption that the solids content of the paint is directly related to the amount of surface covered. Another area being addressed is which VOC calculation method would be better, if VOC regulatory is not the best way to measure VOC content. Finally, if reactivity-based limits were implemented for architectural coatings, there would no longer be a need for the VOC calculation since the product-weighted reactivities, expressed as grams of ozone per gram of product, would replace VOC regulatory. Enclosure 2 is a technical report exploring this issue in detail.

The staff is recommending that the working group continue to meet and attempt to reach consensus on the best way to report VOC content. The staff has also proposed a research contract to study the solids/coverage issue, which was approved by the Board as part of the ARB's 2001/2002 Research Plan. In addition, the staff is continuing to explore the feasibility of reactivity-based limits.

Small Volume Exemption

Based on testimony at the June 2000 hearing, the Board expressed concern about the impacts of the SCM on small businesses making specialty coatings, and asked staff to investigate the inclusion of an exemption for coatings sold in small volumes. In performing the analysis, the staff defined specialty coatings as all coatings except flat and nonflat (enamel) house paint. Specialty coatings account for 40 percent of the architectural coating sales, but produce about 65 percent of the emissions. The staff defined small business as an independently owned and operated company with less than 250 employees. Based on the 1998 architectural coatings survey, about 50 percent of the reporting companies would be classified as small businesses. These small manufacturers produced about 25 percent of the total volume reported in the survey. Survey data show that about 55 percent of the products produced by small

businesses already comply with the new VOC limits, slightly better than the survey respondents overall.

The ARB staff considered several flexibility options related to small volume exemptions for small businesses when developing the SCM: exceedance fee, tonnage exemption, small business exemption, limited exemption for specialty coatings, variances, and niche coating categories. Enclosure 1 contains more details about these options. The SCM already contains an averaging program, which would be feasible for a small business that produces some overcomplying coatings and is willing to prepare the plan and perform the required recordkeeping and reporting. The SCM also has an implementation date of January 1, 2003 (one year later for industrial maintenance coatings) to provide sufficient time for small businesses to comply. Finally, the ARB staff will perform technology assessments prior to the implementation dates of the lower limits to evaluate the progress of manufacturers in meeting the new limits.

The staff has concluded that no new exemption for small businesses or for small volumes is justified. There were no formal requests by small businesses for such exemptions during the public process. Any small volume exemption for small businesses would have a negative impact on the emission reductions, and may be difficult to enforce at the district level. Large manufacturers could reasonably argue that they, too, should be allowed to use the small volume exemption because they sell high-VOC products in small quantities. Many of the exemptions evaluated would require paperwork and expenses that small businesses with limited resources might find burdensome. There are currently several options that are available for small manufacturers: the SCM's averaging provision, the quart exemption, and variances as allowed by State law. The staff believes that the most effective way to accommodate small businesses was to create niche categories for small volume specialty coatings, where the need was documented. Several niche categories were created during the 2000 SCM public process, including clear brushing lacquers, temperature-indicator safety coatings, antenna coatings, and antifouling coatings, to name a few.

Reactivity-Based Control Strategy

The staff is engaged in several activities to investigate the feasibility of a reactivity-based control strategy for architectural coatings. At its April 2001 meeting, the Board authorized a \$60,000 research contract with Dr. W.P.L. Carter of the University of California at Riverside to study two classes of compounds used in architectural coatings that currently are subject to a great deal of uncertainty: (1) Texanol® (2,2,4-trimethyl-1,3-pentanediol isobutyrate), a film-forming aid used in latex paints; and (2) mineral spirits (or petroleum distillates), a diverse group of solvents used in both solvent-borne and water-borne coatings. This project will address the major research priorities for

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architectural coatings identified by the Reactivity Research Advisory Committee, a group made up of stakeholders from industry, academia, and government agencies. In addition, staff is currently working with Dr. Carter and the Reactivity Research Advisory Committee in preparing a \$240,000 proposal for additional architectural coatings reactivity research, as identified in the ARB's 2001/2002 Research Plan.

Staff is undertaking a new survey of architectural coating manufacturers that will provide product-specific information on the individual reactive organic compounds used in architectural coatings. This survey should prove useful in estimating reactivities of architectural coating categories. Staff is also performing a limited analysis of the reactivity of solvents reported in the 1998 architectural coatings survey.

The Board directed staff to assess the extent to which VOCs emitted from architectural coatings contribute to ozone levels, based on comments from industry. However, the architectural coatings industry has provided no data to support the claim that VOCs emitted from architectural coatings do not produce ozone. The Final EIR addressed this issue thoroughly, and staff does not believe that further research into this area is needed.

The staff will report to the Board again on reactivity in December 2002.

If you have any questions, please contact me at (916) 445-4383, or Mr. Peter D. Venturini, Chief, Stationary Source Division, at (916) 445-0650.

cc: Mr. Peter D. Venturini, Chief
Stationary Source Division

Enclosures